

Prof. Douglas' Inter- esting Address

(Continued From Page Two.)

therefore it will take time to persuade our coke manufacturers to complicate the simple process of coke making in the 'bee hive' oven, as long as it makes a good coke out of our splendid coals, with all kinds of chemical processes, (a name which is an abomination to our practical workers), and operated by chemical experts who are even more obnoxious than their processes.

Gains Will Remove Prejudices.

"But the gains are so obvious that prejudice must rapidly vanish, and we shall soon see two great changes taking place. More coke will be made at the works where it is consumed, for coal can be transported more cheaply than coke on account of its lesser bulk, and it does not suffer in transportation, if intended for coking; whereas, coke loses in volume and efficiency by attrition in carriage.

"If moreover, the 25 to 30 per cent of volatile gases given off, even from the 'bee hive' ovens, are burnt as they issued from the 'bee hive' oven under steam boilers, or better still, exploded, after purification, in gas engines, the total weight of combustibles carried from the mine will be burnt either as coke in the blast furnace or as gas after the generation of power.

"There may be furnace plants in localities where the by-products of the coke oven are valuable, though they are becoming fewer with the extension of our railroad system. But even so, it will generally be found cheaper to coke the coal at the furnaces and utilize the escaping gases than to haul from the ovens at a distance the costly bulky coke as well as the coal, for steam generation, on the same train.

Long Distance Electrical Transmission.
"The utilization of the gas at the great centers of the coke industry, as at the Connellsville district, for the generation of power, would formerly have been impossible; but now, that long distance electrical transmission under high voltage has been practically effected, there is no excuse for wasting the energy which escapes from the gas from 25,000,000 tons of coal coked in Pennsylvania alone, where power is in such demand.

"When Siemens introduced his gas producer he imagined the time would come when gas instead of solid fuel would be sent from the mine to the consumer. The conception has never materialized, for obvious reasons. But none of the objections which prevail against the transportation of gas hold good against the transmission of the more subtle mysterious agent—electricity.

"And therefore, with the interposition of only one—for certain purposes, two—conversions and transformations, we shall sooner or later see Siemens' dream realized, for the gas generated at the mine will be transmitted as electric energy to the consumer. And the smoke nuisance, the ash nuisance, and a host of other nuisances, will disappear from our cities and our homes.

Effect Will Be Incalculable.

"The effect of the saving of waste on the price of our staple metals will be incalculable. In fact, when all the volatile products of the coke oven and of the blast furnace, which are now saved in Scotland, are deprived of their heat-giving properties, and their chemical constituents, and when the slag as well as the metal have returned their heat to man instead of to the atmosphere, and the slag itself has been turned into cement, or some other useful article, it will be a question as to whether the pig iron is the principal object of manufacture, or one of the by-products takes primal rank.

Burying Forests in Mines.

"There is another waste for which we are responsible, but for the removal of which I cannot see so speedy an outlook; I mean the burying of our forests in our mines. I do not know how many feet of lumber, board measure, are actually and irrevocably covered up in your copper and iron mines, though I know how intelligently and earnestly your iron masters have worked to overcome this heinous waste. But I am ashamed to say that 25 feet of Oregon pine replaces every ton of copper ore we extract from the Copper Queen.

"There the quantity used is exceptionally large, for the ore is in great measure extracted from soft, irregular masses embedded in a wet clay matrix and square setting, as a measure of safety, has to precede the ore extraction. We cannot see how to actually replace this expensive and wasteful method by back filling or caving, and yet it seems iniquitous to waste such valuable and vanishing natural product as timber, in recovering another product of perhaps less national importance.

Sweden's Example of Reforestation.

"The preservation of our forests and their perpetuation by replanting is of course a subject which you in Michigan must have very near at heart and therefore to Sweden you should look for lessons in the economical use of your forest resources. There is still in operation in Sweden a public company—the Coperberg—whose charter dates back to the thirteenth century, and which depends still for its prosperity on the lumber cut from the tracts of forest which then came into its possession.

"Nothing is rejected. What is not used for pulp making and dimension lumber is devoted to metallurgical purposes—converted either into charcoal for the blast furnace or into gas for

dust goes to waste, and the price Sweden pays for her steel is her reward and warrants the care and the cost involved.

"It also goes without saying that a tree is planted to replace the tree cut down. But there the men and their children are willing to wait till a tree grows. Here we are not; and the state, conscious of its immortality and provident of the national resources for future generations, puts some check on the selfishness of the individual who looks only to today.

State's Duty in Interfering.

"This phase of the subject, involving the duty of the state to interfere with the free action of the individual and with the reckless waste of the nation's resources is, I know, a delicate one, yet none the less momentous. But to discuss it would lead us far afield of our present object, which is to consider cursorily our individual obligation to use our best endeavors towards minimizing the evil.

"My own experience has been largely gained in working mines and treating copper ores of the west, and dates back to the period when both Arizona and the Butte copper interests were in their infancy. I have therefore observed the heavy costs involved through losses, which are incidental

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MINERAL APPLICATION

No. 883.

Mineral Survey No. 1852.

U. S. Land Office, Tucson, Arizona, April 13, 1904.
Notice is hereby given that Martin J. Hare, whose postoffice address is Bisbee, Cochise county, Arizona, has this day filed his application for a patent for 636.5 linear feet of the mountain View mine or vein, bearing copper and other minerals, with surface ground 600 feet in width, situated in Warren mining district, county of Cochise, and Territory of Arizona, and designated by the field notes and official plat on file in this office as Mineral Survey No. 1852, approximately in township No. 23 S., Range No. 24 E. of G. and S. R. B. and M., said Mineral Survey No. 1852, being described as follows, to-wit:

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ATTORNEY-AT-LAW,
Tombstone, Arizona.

FLANNIGAN & FELTUS, LAWYERS.

Offices: Tombstone and Douglas.

HERRING & SORIN,

Attorneys and Counselors at Law,
Tucson, corner Court and Pennington Sts. Bisbee, third floor, Schmidt building.

THOS. D. BENNETT, S. K. WILLIAMS,

BENNETT & WILLIAMS,
Attorneys and Counselors,
No. 7, Brewery Avenue,
Bisbee, Arizona.

DR. SHINE, M. D.

DR. BRODERICK, M. D.
DR. DYSART, M. D.

PHYSICIAN AND SURGEONS.

J. M. O'CONNELL,

ATTORNEY AT LAW.

Schmidt Building,
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